

REMARKS

Claims 1-9 and 11-38 are pending in this application. By this amendment, claims 1, 2, 4-6, 8, 11-13, 15, 17, 18, 20-22, 24-26, 28, and 31-38 are amended. No new matter has been added. Applicants request the prompt examination and allowance of this application.

New Matter Rejections

In the Office Action, claims 1-9 and 11-38 were rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. In particular, regarding claim 1, the language “enabling the valve actuator to implement a variation on conventional engine valve actuation timing in response to one of the first and second temperatures being above a predetermined value; and limiting an amount of fuel injected into a cylinder of the engine when the other of the first and second temperatures is below a predetermined value” was deemed to be new matter in that it was inserted into a claim subsequent to the filing of the instant application. Applicants submit that this claim language is not new matter. Support for the above claim language can be found in the originally filed specification in at least pages 18 and 19. Specifically, paragraph [70] provides that “when the first temperature rises above the predetermined limit, controller 100 may engage “transitional mode” operation.” Paragraph [71] provides that “in transition mode operation, controller 100 may...allow the implementation of a variation on the conventional valve actuation timing.” Paragraph [76] provides that in transition mode operation “controller 100 may control fuel injection system 202 to limit the quantity of fuel injected into cylinders 22.” Thus, in

a transition mode, the first temperature is above a predetermined limit and the second temperature may be below a predetermined limit and controller 100 may allow the implementation of a variation on the conventional valve timing and may limit the quantity of fuel injected into cylinders 22. In view of this clear support in the originally filed specification, Applicants respectfully request reconsideration and withdrawal of the rejection.

Similar language in claims 12, 18, and 25 was also deemed to be new matter. As noted above, at least pages 18 and 19 of the originally filed specification provide support for the rejected language and thus Applicants also respectfully request reconsideration and withdrawal of these rejections.

Anticipated Rejections

In the Office Action, claims 1, 3-5, and 8 were rejected under 35 U.S.C. 102(b) based on Japanese Patent Document 2001107795 A by Kawai ("Kawai"). Applicants respectfully traverse this rejection. A proper anticipation rejection requires each and every element set forth in the claim to be found in a single prior art reference. See MPEP §2131. Kawai does not disclose every element of claim 1.

Kawai discloses a fuel injection system having an intake valve port 27, an intake valve 28, a fuel injection valve 20, and a controller 26. The controller 26 of Kawai adjusts the amount of injected fuel via the fuel injection valve 20 based on a temperature sensed by a sensor 24. The Office Action does not specifically point out, nor is it found, where Kawai discloses the controller 26 also controlling the actuation of the intake valve 28 based on a temperature. Accordingly, Kawai fails to disclose or

suggest, for example, *inter alia*, enabling the valve actuator to implement a variation on timing of an engine intake valve actuation in response to one of a first and second temperatures being above a predetermined value and the other of the first and second temperatures being below a predetermined value, as recited in independent claim 1. For at least this reason, Applicants request reconsideration of the rejection of claim 1 under 35 U.S.C. §102(b) and allowance of claim 1. Claims 3-5 and 8 depend from claim 1 and are allowable for at least the above reason, as well as for their additional features.

Obviousness Rejections

In the Office Action claims 2, 6, 7, 9, 11, 31, and 32 were rejected under 35 U.S.C. §103(a) based on Kawai in view of numerous secondary references. Specifically, claims 2 and 32 were rejected based on Kawai in view of U.S. Patent 6,640,758 to Ashida ("Ashida"); claim 6 was rejected based on Kawai in view of design choice; claim 7 was rejected based on Kawai in view of U.S. Patent 5,537,976 to Hu ("Hu"); claims 9 and 11 were rejected based on Kawai in view of U.S. Patent 6,718,957 to Kakuho ("Kakuho"); and claim 31 was rejected based on Kawai in view of Japanese Patent Document 02112641 by Ikezoe ("Ikezoe"). Applicants respectfully traverse these rejections for the reasons provided above with respect to claim 1. In particular, because the additional references introduced in these rejections do not cure the above-noted deficiency of Kawai. Namely, none of the additional references disclose or suggest enabling the valve actuator to implement a variation on timing of an engine intake valve actuation in response to one of a first and second temperatures being above a

predetermined value and the other of the first and second temperatures being below a predetermined value, as recited in independent claim 1. For at least this reason, Applicants respectfully request reconsideration of the rejection of claims 2, 6, 7, 9, 11, 31, and 32 under 35 U.S.C. §103(a) and allowance of claims 2, 6, 7, 9, 11, 31, and 32.

In the Office Action claims 1, 3-5, and 7-8 were rejected under 35 U.S.C. §103(a) based on Hu in view of Kawai. Applicants respectfully traverse the rejection. A proper prima facie case of obviousness requires three elements: (1) there must be suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference; (2) there must be a reasonable expectation of success; and (3) the prior art reference (or references when combined) must teach or suggest all the claim limitations. See MPEP §2142. The instant obviousness rejection does not establish that the combination of Hu and Kawai teach or suggest all of the claim limitations.

Hu discloses a hydraulic valve actuation system that selectively adjusts actuation of engine valves 30, 60. A controller 100, in response to inputs from sensors 102, selectively opens and closes hydraulic valves 52, 82 to modify the openings and closings of the hydraulically actuated engine valves 30, 60. See lines 15-20 of column 4 of Hu. As noted above, Kawai discloses a fuel injection system having an intake valve port 27, an intake valve 28, a fuel injection valve 20, and a controller 26. The controller 26 of Kawai adjusts the amount of injected fuel via the fuel injection valve 20 based on a temperature sensed by a sensor 24.

Hu and Kawai, separately or in combination, fail to disclose or suggest, for example, *inter alia*, enabling the valve actuator to implement a variation on timing of an engine intake valve actuation and limiting an amount of fuel injected into a cylinder of the engine in response to one of the first and second temperatures being above a predetermined value as claimed in independent claim 1. As admitted in the Office Action, Hu does not disclose controlling the engine valve actuation timing or limiting the amount of fuel injected dependent on temperature signals. Kawai discloses adjusting an amount of injected fuel based on a temperature but does not disclose adjusting an engine intake valve actuation based on a temperature. The teachings of Kawai are limited to adjusting an amount of injected fuel based on a temperature because Kawai does not disclose adjusting an engine intake valve actuation. The suggested combination is in contrast to the claimed enabling of the valve actuator to implement a variation on timing of an engine intake valve actuation and limiting an amount of fuel injected into a cylinder of the engine in response to one of the first and second temperatures being above a predetermined value. For this reason, Applicants request reconsideration of the rejection of claim 1 under 35 U.S.C. §103(a) based on Hu in view of Kawai and allowance of claim 1. Claims 3-5 and 7-8 depend from claim 1 and are allowable for at least the above reason, as well as for their additional features.

In the Office Action claim 6 was rejected under 35 U.S.C. §103(a) based on Hu in view of Kawai in view of design choice. Applicants respectfully traverse this rejection for the reasons provided above with respect to claim 1 and, in particular, because the referenced design choice does not cure the deficiency of Hu and Kawai noted above.

Namely, the referenced design choice does not disclose or suggest enabling the valve actuator to implement a variation on timing of an engine intake valve actuation in response to one of a first and second temperatures being above a predetermined value and the other of the first and second temperatures being below a predetermined value, as recited in independent claim 1. For at least these reasons, Applicants respectfully request reconsideration of the rejection of claim 6 under 35 U.S.C. §103(a) and the allowance of claim 6.

In the Office Action claims 12-30, 34, 36, and 38 were rejected under 35 U.S.C. §103(a) based on Hu in view of Kawai and further in view of Ashida.

Hu discloses a hydraulic valve actuation system that selectively adjusts actuation of engine valves 30, 60. A controller 100, in response to inputs, selectively opens and closes valves 52, 82 to modify the openings and closings of the engine valves 30, 60. See lines 15-20 of column 4. Kawai discloses a fuel injection system having an intake valve port 27, an intake valve 28, a fuel injection valve 20, and a controller 26. The controller 26 of Kawai adjusts the amount of injected fuel via the fuel injection valve 20 based on a temperature sensed by a sensor 24. Ashida discloses a hydraulically driven variable valve timing mechanism 2 that changes the valve timing of the intake and/or exhaust valves. See lines 22-24 and lines 52-57 of column 3. An engine control unit 3 controls the valve timing mechanism 2 based on two temperatures. See lines 1-14 of column 6.

The combination of Hu, Kawai, and Ashida fails to disclose, for example, *inter alia*, engaging the valve actuator with the intake valve and limiting an amount of fuel

injected into a cylinder of the engine in response to one of the first and second temperatures being above a predetermined value as claimed in independent claims 12, 18, and 25. Similar to the reasons set forth above, Hu does not disclose controlling the engine valve actuation timing or limiting the amount of fuel injected dependent on temperature and Kawai does not disclose adjusting an engine intake valve actuation based on temperature. Ashida does not cure this deficiency. Specifically, Ashida discloses adjusting intake and/or exhaust valves based on temperature and does not disclose limiting an amount of fuel injected into an engine cylinder. The teachings of Ashida are limited to adjusting intake and/or exhaust valves based on temperature. Even if one of ordinary skill in the art were inclined to modify Hu with the teachings of Kawai to limit the amount of fuel injected because of a temperature, and one of ordinary skill in the art were also inclined to further modify Hu with the teachings of Ashida to implement a variation on timing of an engine intake valve based on temperature, the combination would still fail to disclose enabling the valve actuator to implement a variation on timing and limiting an amount of fuel injected in response to one of the first and second temperatures being above a predetermined value. At best, the teachings of Kawai and Ashida teach two separate systems, a fuel injection system and an intake and/or exhaust valve system respectfully, each adjusted based on different predetermined temperatures. This is in contrast to the claimed enabling of the valve actuator to implement a variation on timing of an engine intake valve actuation and limiting an amount of fuel injected into a cylinder of the engine in response to one of the first and second temperatures being above a predetermined value. For this reason,

Applicants request reconsideration of the rejection of independent claims 12, 18, and 25 under 35 U.S.C. §103(a) based on Hu in view of Kawai and further in view of Ashida and allowance of claims 12, 18, and 25. Furthermore, claims 13-17, 19-24, 26-30, 34, 36, and 38 depend from associated independent claims 12, 18, and 25 and are allowable for at least the above reason, as well as for their additional features.

In the Office Action, claims 33, 35, and 37 were rejected under 35 U.S.C. §103 based on Hu in view of Kawai and further in view of Ikezoe. Applicants respectfully traverse this rejection. Ikezoe fails to cure the deficiencies noted above with respect to the combination of Hu and Kawai as they relate to claims 12, 18, and 25. Accordingly, claims 33, 35, and 38 are allowable for at least the reason set forth above as well as for their additional features.

Conclusion

Applicants respectfully request that this Amendment under 37 C.F.R. § 1.116 be entered by the Examiner, placing claims 1-9 and 11-38 in condition for allowance. Applicants submit that the proposed amendments of claims 1, 2, 4-6, 8, 11-13, 15, 17, 18, 20-22, 24-26, 28, and 31-38 do not raise new issues or necessitate the undertaking of any additional search of the art by the Examiner, since all of the elements and their relationships claimed were either earlier claimed or inherent in the claims as examined. Therefore, this Amendment should allow for immediate action by the Examiner.

Furthermore, Applicants respectfully point out that the Office Action presented some new arguments as to the application of the art against Applicants' invention. It is

respectfully submitted that the entering of the Amendment would allow the Applicants to reply to the final rejections and place the application in condition for allowance.

Finally, Applicants submit that the entry of the amendment would place the application in better form for appeal, should the Examiner dispute the patentability of the pending claims.

In view of the foregoing remarks, Applicants submit that this claimed invention, as amended, is neither anticipated nor rendered obvious in view of the prior art references cited against this application. Applicants therefore request the entry of this Amendment, the Examiner's reconsideration and reexamination of the application, and the timely allowance of the pending claims.

The Office Action contains characterizations of the claims and the related art, with which Applicants do not necessarily agree. Unless expressly noted otherwise, Applicants decline to subscribe to any statement or characterization in the Office Action.

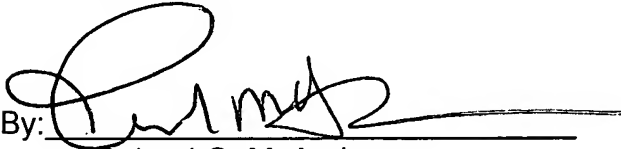
If the Examiner believes a telephone conversation might advance prosecution, the Examiner is invited to call Applicants' undersigned attorney at 202-408-4469.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account no. 06-0916.

Respectfully submitted,

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